

REPLACED BY  
ART 34 AMDT

What is claimed is:

1. A fluid filter cartridge comprising:
  - (a) first and second end caps;
  - (b) a fluid filter media pack secured to, and extending between, the first and second end caps; and
  - (c) a communication/sensor circuit completion unit operably positioned on the first end cap;
    - (i) the communication/sensor circuit completion unit being configured to complete a selected communication/signal circuit only when the filter cartridge is properly mounted for use.
2. A filter cartridge according to claim 1 wherein:
  - (a) the fluid filter media pack is a liquid filter media pack.
3. A filter cartridge according to claim 1 wherein:
  - (a) the communication/sensor circuit completion unit is an optic circuit completion unit.
4. A filter cartridge according to claim 3 wherein:
  - (a) the communication/sensor circuit completion unit is a reflector.
5. A filter cartridge according to claim 3 wherein:
  - (a) the communication/sensor circuit completion unit includes an optic transmitter segment and an optic receiver segment spaced apart by a gap; the gap comprising a portion of a liquid flow path through the first end cap.
6. A filter cartridge according to claim 1 wherein:
  - (a) the first end cap is an open end cap; and
  - (b) the second end cap is a closed end cap.

7. A filter cartridge according to claim 5 wherein:
  - (a) the first and second end caps are molded end caps; and
  - (b) the fluid filter media pack defines an open, central, volume.
8. A filter cartridge according to claim 7 wherein:
  - (a) the communication/sensor circuit completion unit is a reflector selected from glass and plastic.
9. A filter cartridge according to claim 8 wherein:
  - (a) the reflector is coated glass or coated plastic.
10. A filter cartridge according to claim 1 wherein:
  - (a) the communication/sensor circuit completion unit is mounted on an end cap portion axially flexible support by flexible ribs in a corresponding end cap.
11. A cartridge-style filter assembly comprising:
  - (a) a housing; and
  - (b) a serviceable filter cartridge positioned within the housing; the filter cartridge comprising:
    - (i) first and second end caps;
    - (ii) a fluid filter media pack secured to, and extending between, the first and second end caps; and
    - (iii) a communication/sensor circuit completion unit operably positioned on the first end cap;
      - (A) the communication/sensor circuit completion unit being configured to complete a selected communication/signal circuit only when the filter cartridge is properly mounted, for use.
12. A cartridge-style filter assembly according to claim 11 wherein:
  - (a) the communication/sensor circuit completion unit is an optic circuit completion unit.

13. A cartridge-style filter assembly according to claim 12 wherein:
  - (a) the housing comprises a bowl threadably mountable on, and removable from, a filter head.
14. A fluid filter assembly comprising:
  - (a) a filter head having a fluid inlet and a fluid outlet; and
  - (b) a cartridge-style filter assembly removeably mounted on the filter head; the cartridge style filter assembly comprising:
    - (i) a housing; and
    - (ii) a serviceable filter cartridge positioned within the housing; the filter cartridge comprising:
      - (A) first and second end caps;
      - (B) a fluid filter media pack secured to, and extending between, the first and second end caps; and
      - (C) a communication/sensor circuit completion unit operably positioned on the first end cap;
  - (2) the communication/sensor circuit completion unit being configured to complete a selected communication/signal circuit only when the filter cartridge is properly mounted on the filter head, for use.
15. A fluid filter assembly according to claim 14 wherein:
  - (a) the communication/sensor circuit completion unit is an optic circuit completion unit.
16. A fluid filter assembly according to claim 15 wherein:
  - (a) the filter head includes, positioned therein, a transmitter optic fiber and a receiver optic fiber oriented so that the communication/sensor circuit completion unit completes an optic signal circuit between the receiver fiber optic and the receiver fiber optic.

17. A fluid filter assembly according to claim 16 wherein:
  - (a) at least portions of the transmitter optic fiber and the receiver optic fiber are mounted on a spring-loaded, axially moveable, mount.
18. A fluid filter assembly according to claim 16 wherein:
  - (a) the transmitter optic fiber and the receiver optic fiber are positioned to provide a light circuit from an optic couple on an exterior of the filter head through the communication/signal circuit completion unit and back to the optic couple.
19. As assembly according to claim 15 wherein:
  - (a) the communication/sensor circuit completion unit is a reflector.
20. An assembly according to claim 15 wherein:
  - (a) the communication/sensor circuit completion unit includes an optic transmitter segment and an optic receiver segment spaced apart by a gap; the gap comprising a portion of a liquid flow path through the first end cap.
21. A method of evaluating a condition of a serviceable filter cartridge mounted in a filter assembly; said method including a step of:
  - (a) passing a light signal from a portion of the assembly, through a communication/signal circuit completion unit on the filter cartridge and back into the filter assembly.